uCertify

Course Outline

A Practical Guide to Digital Forensics Investigations

20 May 2024

1. Course Objective
2. Pre-Assessment
3. Exercises, Quizzes, Flashcards & Glossary

   Number of Questions
4. Expert Instructor-Led Training
5. ADA Compliant & JAWS Compatible Platform
6. State of the Art Educator Tools
7. Award Winning Learning Platform (LMS)
8. Chapter & Lessons

   Syllabus

   Chapter 1: Introduction

   Chapter 2: The Scope of Digital Forensics

   Chapter 3: Windows Operating and File Systems

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   Chapter 5: Acquiring Evidence in a Computer Forensics Lab

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   Chapter 12: Photograph Forensics

   Chapter 13: Mac Forensics

   Chapter 14: Case Studies

   Chapter 15: Internet of Things (IoT) Forensics and Emergent Technologies

   Videos and How To
9. Practice Test

   Here's what you get

1. Course Objective

Get to know about digital forensics with the A Practical Guide to Digital Forensics Investigations course and lab. The lab is cloud-based, device-enabled, and can easily be integrated with an LMS. The computer forensics training course and lab provide complete coverage of both technical and investigative skills. The study guide also covers modern devices, networks, and the Internet Addresses online and lab investigations; documentation, admissibility, and more.

2. Pre-Assessment

Pre-Assessment lets you identify the areas for improvement before you start your prep. It determines what students know about a topic before it is taught and identifies areas for improvement with question assessment before beginning the course.

3. Quiz

Quizzes test your knowledge on the topics of the exam when you go through the course material. There is no limit to the number of times you can attempt it.

4. flashcards

Flashcards are effective memory-aiding tools that help you learn complex topics easily. The flashcard will help you in memorizing definitions, terminologies, key concepts, and more. There is no limit to the number of times learners can attempt these. Flashcards help master the key concepts.

5. Glossary of terms

uCertify provides detailed explanations of concepts relevant to the course through Glossary. It contains a list of frequently used terminologies along with its detailed explanation. Glossary defines the key terms.

6. Expert Instructor-Led Training

uCertify uses the content from the finest publishers and only the IT industry's finest instructors. They have a minimum of 15 years real-world experience and are subject matter experts in their fields. Unlike a live class, you can study at your own pace. This creates a personal learning experience and gives you all the benefit of hands-on training with the flexibility of doing it around your schedule 24/7.

7. ADA Compliant & JAWS Compatible Platform

uCertify course and labs are ADA (Americans with Disability Act) compliant. It is now more accessible to students with features such as:

- Change the font, size, and color of the content of the course
- Text-to-speech, reads the text into spoken words
- Interactive videos, how-tos videos come with transcripts and voice-over
- Interactive transcripts, each word is clickable. Students can clip a specific part of the video by clicking on a word or a portion of the text.

JAWS (Job Access with Speech) is a computer screen reader program for Microsoft Windows that reads the screen either with a text-to-speech output or by a Refreshable Braille display. Student can easily navigate uCertify course using JAWS shortcut keys.

8. State of the Art Educator Tools

uCertify knows the importance of instructors and provide tools to help them do their job effectively. Instructors are able to clone and customize course. Do ability grouping. Create sections. Design grade scale and grade formula. Create and schedule assessments. Educators can also move a student from self-paced to mentor-guided to instructor-led mode in three clicks.

9. Award Winning Learning Platform (LMS)

uCertify has developed an award winning, highly interactive yet simple to use platform. The SIIA CODiE Awards is the only peer-reviewed program to showcase business and education technology's finest products and services. Since 1986, thousands of products, services and solutions have been recognized for achieving excellence. uCertify has won CODiE awards consecutively for last 7 years:

- **2014**
    1. Best Postsecondary Learning Solution

- **2015**
    1. Best Education Solution

2. Best Virtual Learning Solution
3. Best Student Assessment Solution
4. Best Postsecondary Learning Solution
5. Best Career and Workforce Readiness Solution
6. Best Instructional Solution in Other Curriculum Areas
7. Best Corporate Learning/Workforce Development Solution

- **2016**
    1. Best Virtual Learning Solution
    2. Best Education Cloud-based Solution
    3. Best College and Career Readiness Solution
    4. Best Corporate / Workforce Learning Solution
    5. Best Postsecondary Learning Content Solution
    6. Best Postsecondary LMS or Learning Platform
    7. Best Learning Relationship Management Solution

- **2017**
    1. Best Overall Education Solution
    2. Best Student Assessment Solution
    3. Best Corporate/Workforce Learning Solution
    4. Best Higher Education LMS or Learning Platform

- **2018**
    1. Best Higher Education LMS or Learning Platform
    2. Best Instructional Solution in Other Curriculum Areas
    3. Best Learning Relationship Management Solution

- **2019**
    1. Best Virtual Learning Solution
    2. Best Content Authoring Development or Curation Solution
    3. Best Higher Education Learning Management Solution (LMS)

- **2020**

1. Best College and Career Readiness Solution
2. Best Cross-Curricular Solution
3. Best Virtual Learning Solution

10. Chapter & Lessons

uCertify brings these textbooks to life. It is full of interactive activities that keeps the learner engaged. uCertify brings all available learning resources for a topic in one place so that the learner can efficiently learn without going to multiple places. Challenge questions are also embedded in the chapters so learners can attempt those while they are learning about that particular topic. This helps them grasp the concepts better because they can go over it again right away which improves learning.

Learners can do Flashcards, Exercises, Quizzes and Labs related to each chapter. At the end of every lesson, uCertify courses guide the learners on the path they should follow.

Syllabus

Chapter 1: Introduction

Chapter 2: The Scope of Digital Forensics

- Popular Myths about Computer Forensics
- Types of Digital Forensic Evidence Recovered
- What Skills Must a Digital Forensics Investigator Possess?
- The Importance of Digital Forensics
- Job Opportunities
- A History of Digital Forensics

Chapter 5: Acquiring Evidence in a Computer Forensics Lab

- Lab Requirements
- Private-Sector Computer Forensics Laboratories
- Computer Forensics Laboratory Requirements
- Extracting Evidence from a Device
- Skimmers
- Steganography
- Summary

Chapter 6: Online Investigations

- Working Undercover
- Dark Web Investigations
- Virtual Currencies
- Website Evidence
- Background Searches on a Suspect
- Online Crime
- Capturing Online Communications

- Edge Web Browser
- Summary

Chapter 7: Documenting the Investigation

- Obtaining Evidence from a Service Provider
- Documenting a Crime Scene
- Seizing Evidence
- Documenting the Evidence
- Using Tools to Document an Investigation
- Writing Reports
- Using Expert Witnesses at Trial
- Summary

Chapter 8: Admissibility of Digital Evidence

- History and Structure of the United States Legal System
- Evidence Admissibility
- Constitutional Law
- When Computer Forensics Goes Wrong
- Structure of the Legal System in the European Union (E.U.)

- Privacy Legislation in Asia
- Summary

Chapter 9: Network Forensics and Incident Response

- The Tools of the Trade
- Networking Devices
- Understanding the OSI Model
- Introduction to VoIP
- Incident Response (IR)
- STIX, TAXII, and Cybox
- Advanced Persistent Threats
- Investigating a Network Attack
- Summary

Chapter 10: Mobile Forensics

- The Cellular Network
- Handset Specifications
- Mobile Operating Systems

- Standard Operating Procedures for Handling Handset Evidence
- Handset Forensics
- Manual Cellphone Examinations
- Global Satellite Service Providers
- Legal Considerations
- Other Mobile Devices
- Documenting the Investigation
- Summary

Chapter 11: Mobile App Investigations

- Static Versus Dynamic Analysis
- Dating Apps
- Rideshare Apps
- Communication Apps
- Summary

Chapter 12: Photograph Forensics

- National Center for Missing and Exploited Children (NCMEC)
- Project VIC

- Case Studies
- Understanding Digital Photography
- Examining Picture Files
- Evidence Admissibility
- Case Studies
- Summary

Chapter 13: Mac Forensics

- A Brief History
- Apple Wi-Fi Devices
- Macintosh File Systems
- Macintosh Operating Systems
- Apple Mobile Devices
- Performing a Mac Forensics Examination
- Case Studies
- Summary

Chapter 14: Case Studies

- Silk Road
- Las Vegas Massacre
- Zacharias Moussaoui
- BTK (Bind Torture Kill) Serial Killer
- Cyberbullying
- Sports
- Summary

Chapter 15: Internet of Things (IoT) Forensics and Emergent Technologies

- 5G
- Wi-Fi 6
- Wi-Fi Mesh Networks
- Shodan
- Mirai Botnet
- Cryptocurrency Mining
- Alexa
- Micro-Chipping
- Fitness Trackers

- Apple Watch
- Action Cameras
- Police Safety
- Police Vehicles
- Vehicle Forensics
- Low-Tech Solution for High-Tech Seizures
- Summary

11. Practice Test

Here's what you get

141	142
PRE-ASSESSMENTS QUESTIONS	POST-ASSESSMENTS QUESTIONS

Features

Each question comes with detailed remediation explaining not only why an answer option is correct but also why it is incorrect.

Unlimited Practice

Each test can be taken unlimited number of times until the learner feels they are prepared. Learner can review the test and read detailed remediation. Detailed test history is also available.

Each test set comes with learn, test and review modes. In learn mode, learners will attempt a question and will get immediate feedback and complete remediation as they move on to the next question. In test mode, learners can take a timed test simulating the actual exam conditions. In review mode, learners can read through one item at a time without attempting it.

12. Live Labs

The benefits of live-labs are:

- Exam based practical tasks
- Real equipment, absolutely no simulations
- Access to the latest industry technologies
- Available anytime, anywhere on any device
- Break and Reset functionality
- No hardware costs

Lab Tasks

The Scope of Digital Forensics

- Displaying Metadata Information

Windows Operating and File Systems

- Enabling the Peek Performance Option
- Using a Hex Editor
- Converting an NTFS Partition to FAT32 Using Disk Management

- Converting a FAT32 Partition to NTFS Using Command Prompt
- Converting a FAT32 Partition to NTFS Using Disk Management
- Using FTK Imager
- Exploring Windows File Registry
- Using the Event Viewer
- Using the Disk Defragmenter

Handling Computer Hardware

- Installing an Optical Drive and a PCI Sound Card
- Supplying Power to a SATA Drive
- Installing Expansion Cards on a Motherboard
- Installing a USB 3.0 PCI Express Card (2.0 x4)
- Verifying RAM Usage
- Installing FireWire Cards

Acquiring Evidence in a Computer Forensics Lab

- Using GREP
- Using the dd Utility

Online Investigations

- Using MBSA
- Using a Numeric IP Address to Locate a Web Server

Network Forensics and Incident Response

- Analyzing Traffic Captured from Site Survey Software
- Using NetWitness Investigator
- Capturing Packets Using Wireshark
- Using TCPdump
- Finding a MAC Address of a System
- Using the tracert Command
- Getting Information about DNS (Layer 4)
- Obtaining Information about the Net Firewall Profile

- Obtaining IP Route Information from the IP Routing Table
- Obtaining Information about an IP Version
- Obtaining an IP version of a Network Adapter
- Getting Information about UDP Ports
- Getting Information about the Current Connection Statistics of UDP
- Getting Settings of UDP
- Getting Information about TCP Ports
- Getting Information about the Current Connection Statistics of TCP
- Getting the Settings of TCP

Mobile Forensics

- Setting Up a VPN in Android
- Configuring an Email in Android
- Removing an Account in Android

Mac Forensics

- Turning on Airplane Mode of an iPhone
- Viewing the iOS Version of an iPhone

Here's what you get

42	42	36
LIVE LABS	VIDEO TUTORIALS	MINUTES

13. Post-Assessment

After completion of the uCertify course Post-Assessments are given to students and often used in conjunction with a Pre-Assessment to measure their achievement and the effectiveness of the exam.

GET IN TOUCH:

3187 Independence Drive
Livermore, CA 94551,
United States

+1-415-763-6300

support@ucertify.com

www.ucertify.com